IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A process for variably preparing mixtures of optionally alkyl-substituted butanediol (BDO), butyrolacetone (GBL) and tetrahydrofuran (THF) by two-stage hydrogenation in the gas phase of C_4 dicarboxylic acids and/or derivatives thereof, which comprises

a) hydrogenating in a gas phase a gas stream of C_4 dicarboxylic acids and/or derivatives thereof over a catalyst at a pressure of from 2 to 100 bar and a temperature of from 200°C to 300°C in a first reactor in the presence of a noble metal-free catalyst in the form of shaped catalyst bodies having a volume of less than 20 mm^3, said catalyst from 5 to 95% by weight of oxide of copper and from 5 to 95% by weight of an oxide having acidic sites, to give a stream containing alkyl-substituted GBL and THF,

b) removing any succinic anhydride (SA) formed by partial condensation,

c) converting the products remaining predominantly in the gas phase in the partial condensation, THF, water and GBL, under the same pressure or under a pressure reduced by the pressure drops in the hydrogenation circuit and at a temperature of from 150 to 240°C, in a second reactor over a noble metal-free catalyst which ≤ 95% by weight of CuO and from 5 to 95% by weight of one or more oxides selected from the group of ZnO, Al_2O_3, SiO_2, TiO_2, ZrO_2, CeO_2, MgO, CaO, SrO, BaO, La_2O_3 and Mn_2O_3 to give a stream comprising a mixture of BDO, GBL and THF,

d) removing the hydrogen from the products and recycling it into the hydrogenation,

e) separating by distillation the products, THF, BDO, GBL and water, recycling a GBL-rich stream into the second reactor or discharging it, and working up BDO, THF and GBL by distillation,

and setting the ratio of the products, THF, GBL and BDO, relative to one another within the range from 10 to 100% by weight of THF, from 0 to 90% by weight of GBL and from 0 to 90% by weight of BDO only by varying the temperatures in the two hydrogenation ~~zones~~ reactors and also the GBL recycle stream.

Claim 2 (Previously Presented): The process according to claim 1, wherein the partial condensation of the succinic anhydride is designed as a circulation quench cycle.

Claim 3 (Previously Presented): The process according to claim 1, wherein the evaporation of the recycled GBL or GBL/water mixture is effected in a countercurrent apparatus, with the GBL/THF-laden cycle gas hydrogen.

Claim 4 (Previously Presented): The process according to claim 1, wherein the partial condensation of the succinic anhydride and the evaporation of the GBL or GBL/water recycle stream are combined in one apparatus, and the succinic anhydride is discharged as the bottom effluent together with residual GBL, water and high-boiling secondary components.

Claim 5 (Previously Presented): The process according to claim 1, which is carried out continuously.

Claim 6 (Previously Presented): The process according to claim 1, wherein the inlet temperature in the first reactor is at values of from 200°C to 300°C, and from approx. 5 to 15°C, below the hotspot temperature.

Claim 7 (Previously Presented): The process according to claim 1, wherein the temperature increase in the second reactor is not more than 90°C.

Claim 8 (Previously Presented): The process according to claim 1, wherein the inlet temperature in the second reactor is at values between 150°C and 270°C.

Claim 9 (Previously Presented): The process according to claim 1, wherein both hydrogenation stages are carried out at pressures of from 2 to 100 bar.

Claim 10 (Previously Presented): The process according to claim 1, wherein the catalyst hourly space velocity of the first hydrogenation stage is in the range from 0.02 to 2 kg of reactant/l of catalyst hour.

Claim 11 (Previously Presented): The process according to claim 1, wherein the catalyst hourly space velocity of the second hydrogenation stage is in the range from 0.02 to 2 kg of reactant/l of catalyst • hour.

Claim 12 (Previously Presented): The process according to claim 1, wherein the molar hydrogen/reactant ratio in the first hydrogenation stage is at values of from 20 to 650.

Claim 13 (Previously Presented): The process according to claim 1, wherein the molar hydrogen/GBL ratio in the second hydrogenation stage is at values of from 20 to 1000.

Claim 14 (Previously Presented): The process according to claim 1, wherein the reactor used in the first hydrogenation stage is a fixed bed reactor, a shaft reactor, a fluidized bed reactor or a reactor having internal heat removal.

Claim 15 (Previously Presented): The process according to claim 1, wherein the reactor used in the second hydrogenation stage is a fixed bed reactor, a tube bundle reactor, a fluidized bed reactor or a reactor having internal heat removal.

Claim 16 (Previously Presented): The process according to claim 1, wherein the volume of the individual shaped body in the first hydrogenation stage is $< 10\ mm^3$.

Claim 17 (Previously Presented): The process according to claim 1, wherein the CuO is less than 80% by weight, and is more than 20% by weight, of an oxide having acidic sites present.

Claim 18 (Previously Presented): The process according to claim 1, wherein the oxide having acidic sites is Al_2O_3.

Claim 19 (Previously Presented): The process according to claim 1, wherein the catalyst of the first hydrogenation stage is one or more metals or a compound thereof, from the group consisting of the elements of groups 1 to 14 of the Periodic Table of the Elements.

Claim 20 (Previously Presented): The process according to claim 1, wherein the catalyst is in the form of an extrudate.

Claim 21 (Previously Presented): The process according to claim 1, wherein the catalyst of the second hydrogenation stage, in addition to CuO, oxides selected from the group of ZnO/Al_2O_3 mixtures, delta-, theta-, alpha- and eta-modifications of Al_2O_3, and mixtures which comprise Al_2O_3 and at least one component from the group of SiO_2, TiO_2, ZrO_2 on the one hand and from the group of ZnO, MgO, CaO, SrO and BaO on the other, or which contain at least one component from the group of SiO_2, TiO_2, ZrO_2 on the one hand and from the group of ZnO, MgO, CaO, SrO and BaO on the other.

Claim 22 (Previously Presented): The process according to claim 1, wherein the catalyst of the second hydrogenation stage comprises oxides selected from ZnO, ZnO/Al_2O_3 mixtures in a weight ratio of from 100:1 to 1:2 and mixtures of SiO_2 with MgO, CaO and/or ZnO in a weight ratio of from 200:1 to 1:1.

Claim 23 (Previously Presented): The catalyst according to claim 1, which is activated by reduction, before or after installation into the reactor and before use in the hydrogenation reaction.